

WHAT IS CLAIMED IS:

1. A structure of a light-shielding frame for a liquid crystal display panel, comprising:

5 a thin film transistor array substrate having a display region and a frame region surrounding said display region; and

at least one color layer formed on said frame region,

wherein said color layer prevents ambient light from projecting onto said frame region and serves as a spacer whereby a cell gap between said thin film
10 transistor array substrate and an opposite substrate is uniformly controlled.

2. The structure according to claim 1, wherein a pattern of a transistor array is formed on said display region.

15 3. The structure according to claim 1, wherein said cell gap between said thin film transistor array substrate and said opposite substrate is much more uniformly controlled by further forming a planarization layer on said color layer.

20 4. The structure according to claim 3, wherein said planarization layer is made of a transparent resin.

5. The structure according to claim 1, wherein said liquid crystal display panel is a low temperature polysilicon liquid crystal display panel.

6. The structure according to claim 5, wherein a pattern of a plurality of driving integrated circuits is formed on said frame region.

7. The structure according to claim 1, wherein said color layer is
5 selected from a group consisting of a red color layer, a green color layer, and a blue color layer.

8. A method of manufacturing a liquid crystal display panel, said liquid
crystal display panel including a thin film transistor array substrate having a
10 display region and a frame region surrounding said display region, said method comprising the steps of:

(a) respectively and simultaneously forming a color filter layer and at least one color layer on said display region and said frame region;

(b) attaching said thin film transistor array substrate to an opposite
15 substrate to form a space between said thin film transistor array substrate and said opposite substrate; and

(c) injecting a resin made of liquid crystal material into said space.

9. The method according to claim 8, wherein said step (a) is performed
20 by a photolithography process and a dyeing process.

10. The method according to claim 8, wherein said step (a) further comprises simultaneously forming a spacer on said display region.

11. The method according to claim 10, wherein said spacer comprises at least one stacked layer.

12. The method according to claim 8, wherein after said step (a) further comprises a step of (a1):
forming a planarization layer on said thin film transistor array substrate.

13. The method according to claim 12, wherein said planarization layer is made of transparent resin.

14. The method according to claim 12, wherein after said step (a1) further comprises a step of (a2):
polishing said planarization layer by chemical-mechanical polishing to a pre-determined thickness.

15. The method according to claim 12, wherein after said step (a1) further comprises a step of (a3):
uniformly spraying a plurality of plastic beads on said display region.

16. The method according to claim 15, wherein said plastic beads control a cell gap between said thin film transistor array substrate and said opposite substrate.

17. The method according to claim 8, wherein a pattern of a transistor array is formed on said display region.

18. The method according to claim 8, wherein a transparent conducting electrode is formed on said opposite substrate.

5 19. The method according to claim 18, wherein said transparent conducting electrode is made of indium tin oxide.